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ERIGERON PUSILLUS A VALID SPECIES.

B. L. Robinson.

While collecting during the spring of 1912 in the neighborhood of Charleston, South Carolina, I found in sandy soil on the Isle of Palms a small and rather loosely branched *Erigeron*, obviously close to *E. canadensis* L., yet with smoother stem and narrower leaves than are found in the common and familiar weed of fields and dry open roadsides. On returning to the Gray Herbarium a few weeks later I tried to separate the coastal plant in question from *E. canadensis*, but found such variety of habit, stature, pubescence, leaf-breadth, etc., among the specimens long referred to the species, that no feasible planes of cleavage were discovered, and the South Carolina plant was reluctantly referred to the common species.

In examining recently some sets of phanerogams collected for the Gray Herbarium in the Bermuda Islands by Mr. F. S. Collins, I was much interested to find again the smoothish form of *Erigeron*. This led to its more careful examination. Noticing that the involucral scales had minute purplish quasi glandular tips, I found at once that it was possible to sort very definitely some forty individuals of Bermuda material into two kinds, some having these purple-tipped scales, and the others having more attenuate white-tipped scales. Soon concomitant differences appeared and it was evident that the form with purple-tipped scales was consistently smoother, more slender, entire-leaved and tended to have fewer and slightly smaller heads on more elongated pedicels together forming a more open inflorescence.

With these leading characters in mind, the considerable mass of *E. canadensis* in the Gray Herbarium and the herbarium of the New

England Botanical Club was re-examined and quickly found to be similarly divisible. The form with purple-tipped scales proved to have a generally coastal distribution from eastern Massachusetts to Florida, Central America, Colombia, Guiana, and the West Indies, with a single outlying specimen from New South Wales, while the form with attenuate white-tipped scales extends across the North American continent, showing some variations to the westward, and being also frequent as an introduced plant in various parts of the Old World.

Study of the literature of the group leaves no doubt that the widely distributed plant with white-tipped scales is the typical *E. canadensis* L., while the coastal plant with purple-tipped scales is the *E. pusillus* of Nuttall, who long ago recognized its lower stature, smoother stem, and more slender, open, and fewer-headed inflorescence, as well as its consistently entire leaves. The small purple dot at the apex of the involucral scale, though a valuable differential character, is inconspicuous except under a lens, and seems to have been overlooked by Nuttall, but all characters mentioned by Nuttall correspond perfectly with the plant in question. Furthermore, there is confirmation in the identity of a specimen labelled *E. pusillum* Nutt., now in the Gray Herbarium, which was received from the herbarium of Nuttall apparently at the time when Torrey and Gray were preparing the manuscript of the *Compositae* for their Flora of North America. It is interesting to find that this doubtless authentic specimen exhibits not only all the characteristics attributed to his species by Nuttall but shows the purple-tipped involucral scales.

The examination of many specimens from numerous widely separated stations shows the same distinctions between *E. canadensis* and *E. pusillus*, and as yet no tendency toward intergradation has been observed. It seems therefore that Nuttall's *E. pusillus* may be reinstated as a valid species, near to, though readily distinguishable from, *E. canadensis*. It will be interesting to learn whether its range can be extended further toward the northeast.

The only attempt, which I have found in recent literature, to reinstate *E. pusillus* Nutt. is apparently a mistaken one. It is the *Leptilon canadense pusillum* (Nutt.) Daniels, Flora of Boulder, Colorado, 239 (1911). No description is given beyond the statement: "The common form of the foothills, $\frac{1}{2}$–1 dm. high and but few-flowered, 6000–8000 ft. (Daniels, 694)." An examination of a considerable number of specimens of *E. canadensis* L. from the Rocky Mountain

region, while disclosing great variability in such matters as stature, number of heads, etc., has failed to show a single specimen of *E. pusillus* Nutt.— a matter by no means surprising in consideration of the generally coastal distribution of the species. It is to be inferred therefore that the plant to which Prof. Daniels referred was merely a starved and depauperate state of the common *E. canadensis* L.

An examination of *E. canadensis* L. as it occurs in the southwestern part of the United States indicates that Dr. Gray's long neglected var. *glabratus* is capable of recognition and worthy of more careful restatement as to character and range.

Much more doubtful is *E. strictus* DC., originally collected by Berlandier near the boundary between Texas and Mexico. In all matters of foliage, pubescence, involucre, etc., it appears to be indistinguishable from *E. canadensis*, yet it may be worth while to draw attention to the compact thyrsoid almost spicate form of the young inflorescence in the type material of *E. strictus*, since the young inflorescence in *E. canadensis* is commonly rather loose and open. However, while this is a matter which should be watched by those who have opportunities to study southwestern specimens of the group, the material at present available of the so-called *E. strictus* DC. is not sufficient to show whether this distinction of the young inflorescence has any value in classification. For the present *E. strictus* DC. would better be included as heretofore in the synonymy of *E. canadensis* L.

Of the other synonyms of *E. canadensis*, it is clear that *E. paniculatus* Lam. is a mere renaming of the Linnaean species, and *Senecio ciliatus* Walt., described as pilose and 6–8 feet high, was doubtless *E. canadensis* L. rather than *E. pusillus* Nutt.

The plants here discussed may be summarized as follows: —

Involucral scales minutely purple-tipped.....*E. pusillus.*
Involucral scales with attenuate whitish tips.
  Stems spreading-hirsute. Heads cymosely disposed in panicle. *E. canadensis.*
  Stems glabrous or with few scattered appressed short hairs. Heads quasi racemose on long branches of panicle.....*E. canadensis*, v. *glabratus.*

E. PUSILLUS Nutt. Stem .08–1 m. high, nearly or quite glabrous, the trichomes if present minute and subappressed: leaves mostly oblanceolate-linear and very narrow, the earliest lance-oblong, the upper linear, all entire, ciliate at least toward the contracted base: inflorescence inclining to be open; involucral scales straight, nearly or quite glabrous, with regular (not crisped) white subscarious margins, the tip slightly bluntish (under a lens), obscurely fimbriolate and

dorsally marked with a purplish spot at or just below the apex.— Gen. ii. 148 (1818); Ell. Sk. ii. 398 (1824); DC. Prod. v. 289 (1836); Reade, Plants of the Bermudas, 40 (1883); all as *E. pusillum*. *E. canadensis*, var. *pusillus* Bart. Fl. Philad. ii. 108 (1818), as *pusillum*. *Caenotus pusillus* (Nutt.) Raf. Fl. Tellur. ii. 50 (1837), by implication; Hook. f. & Jacks. Ind. Kew. i. 370 (1893).— MASSACHUSETTS: Plymouth, *Oakes;* sandplain, Cataumet, Bourne, 26 Oct. 1913, *Fernald;* head of sand beach, Wild Harbor, Falmouth, 25 Aug. 1906, *Batchelder;* dry sandy soil, Chatham, 9 Sep. 1913, *Fernald & Long;* Chilmark, Martha's Vineyard, *Harris*. RHODE ISLAND: waste places, Providence, August, 1844, *Thurber*. Without stated locality but probably in New Jersey or Pennsylvania, *Nuttall*. KENTUCKY (southeastern part): near Poor Fork Post Office, *Kearney*, no. 218 (Gray Herb.); Pine Mountain, Harlan County, *Kearney*, no. 218 in part (herbarium of W. Deane). SOUTH CAROLINA: Charleston, *Beyrich;* common in fields, Santee Canal, *Ravenel;* in loose sand, Isle of Palms, *Robinson*, no. 51. GEORGIA: in fields, *Beyrich*, no. 3263. FLORIDA: Biscayne Bay, *Palmer*, no. 246; Braidentown, *Tracy*, no. 7077; weed in waste places, Meyers, *Hitchcock*, no. 144. MISSISSIPPI: Biloxi, *Tracy*, no. 6349; Horn Island, *Tracy*, no. 6348. TEXAS: Huntsville, Walker Co., *Dixon*, no. 411. YUCATAN: Izamal, *Gaumer*, no. 846. STATE OF VERA CRUZ: alt. 825 m., Cordoba, *Seaton*, no. 446; Coatzacoalcos, *C. L. Smith*, no. 582. GUATEMALA: Laguna de Ayarza, alt. 2440 m., *Heyde & Lux*, no. 3801 (distrib. J. D. Smith). COSTA RICA: cultivated ground, Tuis, *Tonduz*, no. 11,478; Copey, *Tonduz*, nos. 11,773, 11,766; hills of Santiago near San Ramón, *Brenes*, no. 14,363. COLOMBIA: Santa Marta, *H. H. Smith*, no. 527. DUTCH GUIANA: *Kappler*, no. 1212. BERMUDA ISLANDS: sand dunes, Paget, 10 June, 1905, *Harshberger;* waste ground, Somerset Island, *S. Brown*, no. 641; roadsides, Devonshire, *Collins*, no. 48; roadsides, Flatts Village, *Collins*, no. 405; Middle Road, *Collins*, no. 310. BAHAMA ISLANDS: dry lime sand, Nassau, *Wight*, no. 1313. JAMAICA: St. Margaret's Bay, *Millspaugh*, no. 1918. ST. CROIX: roadside, *Rickseeker*, no. 484. ST. VINCENT: *H. H. & G. W. Smith*, no. 1930. GRENADA: Tempé, St. George, 25 Sep. 1905, *Broadway*. NEW SOUTH WALES: Kurnell, Botany Bay, *Boorman*, no. 2.

E. CANADENSIS L. Stem 0.1–2 m. high, spreading-hirsute with scattered long horizontally divergent trichomes: leaves narrowly lanceolate or oblanceolate to linear, ciliate, the lower usually toothed: heads in an at length elongated cymose panicle; involucral scales linear-attenuate with scarious usually more or less crisped margins and gradually pointed whitish tips.— Spec. Pl. ii. 863 (1753), as *E. canadense*. *E. paniculatum* Lam. Fl. Fr. ii. 141 (1778). *Senecio ciliatus* Walt. Fl. Car. 208 (1788). *E. strictum* DC. Prod. v. 289 (1836), a form with the young inflorescence compactly thyrsoid. *Caenotus canadensis* (L.) Raf. Fl. Tellur. ii. 50 (1837), by implication; Hook. f. & Jacks. Ind. Kew. i. 370 (1893). *Conyzella canadensis* (L.)

Rupr. Mém. Acad. Pétersb. sér. 7, xiv. n. 4, 51 (1869). *Leptilon canadense* (L.) Britton in Britton & Brown, Ill. Fl. iii. 391 (1898). *L. canadense pusillum* Daniels, Fl. Boulder, Col. 239 (1911), as to plant but excl. name-bringing synonym.— Common and widely distributed through temperate North America, Mexico, and in scattered localities south even to Chili; also an introduced weed in waste places, etc., in the Old World.

Var. GLABRATUS Gray. Tall and (for the species) robust, with smoothish stem, the trichomes few, scattered, and very short, ascending or subappressed: branches of the large inflorescence long (1--1.5 dm.) simple, apt to be closely flowered and appearing inversely racemose or even almost spicate.— Pl. Lindh. ii. 220 (1850).— TEXAS: between the Colorado and Nueces Rivers, *Berlandier*, no. 2555; fields in sandy loamy soil near Bracken, Bexar Co., *Groth*, no. 83; prairie north of the Llano among granite rocks, *Lindheimer*, no. 626 (444). NEW MEXICO: Forest Nursery, Fort Bayard, Watershed, Grant Co., *Blumer*, no. 33; cañons, Tierra Blanca, Sierra Co., *Metcalfe*, no. 1229. CHIHUAHUA: near Lake Santa Maria, *E. W. Nelson*, no. 6388. CALIFORNIA: Wilson's Lake, *Nevin*, no. 8.

GRAY HERBARIUM.

ON VARIATION IN ARENARIA LATERIFLORA.

R. W. WOODWARD.

WHILE collecting on the low grounds near the beach at Westerly, Rhode Island, June 5, 1913, I was struck by the display of *Arenaria lateriflora*, the season's vegetation not being far enough advanced to overtop the *Arenaria*, which was abundant, and conspicuous with its white flowers, over considerable areas. Equally abundant, but growing by itself and not mingling with the other, was a plant with smaller white flowers, which I at first took to be a different species, but which proved on examination to be a form of *Arenaria lateriflora*, or at least closely related to it. Many specimens of these plants were examined, both in the field and later, and the differences between them are so marked and so constant that it seems worth while to place them upon record.

The petals of the first plant average 7.5 mm. in length, and the prominent stamens are about twice the length of the calyx, equalling